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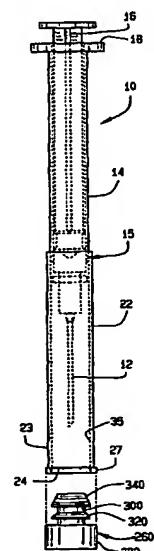
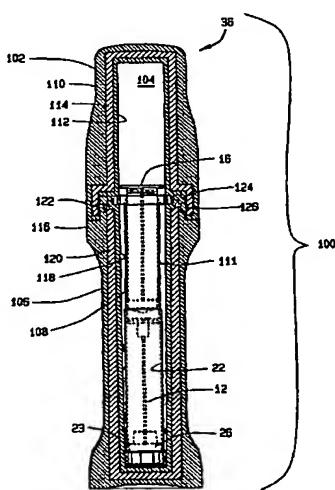
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A SAFETY SYRINGE SEALING SYSTEM AND METHOD OF USE



(57) Abstract: A safety syringe sealing system and method of use is disclosed. The safety syringe sealing system includes the combination of a safety syringe and a plug. The safety syringe includes a barrel, a needle, a plunger and a needle sheath. The needle sheath is movable between a retracted position where the needle is exposed, to an extended position where the needle is protected, the needle sheath defining an open end. There is a plug that is engageable with the open end of the needle sheath when the needle sheath is in the extended position. The sealing system can also include a pharmaceutical pig, having a base and cap, where the base and cap define a hollow center section that is capable of receiving the safety syringe. Therefore, the safety syringe, having a plugged needle sheath, may be sealed within the pharmaceutical pig to prevent leakage and inadvertent exposure.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/24510

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61M5/32 A61M5/50 A61M5/178

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 093 170 A (HSU KUO-CHI ET AL) 25 July 2000 (2000-07-25) column 4, line 39 -column 5, line 1; figures 1-6 column 5, line 22 - line 34; figures 8,9	1-4,6, 14,15,18
Y		5,7-10, 12,13, 16,17, 19,28-31
A		20-22, 24-26
Y	GB 2 287 192 A (WAYMADE PLC) 13 September 1995 (1995-09-13) page 10, last paragraph; figure 9	5,16,17, 19
A	---	11
	-/-	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the International search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 162 198 A (COFFEY JACK L ET AL) 19 December 2000 (2000-12-19) column 6, line 14 - line 15 figure 4	7-10,12, 13,28-31
A	---	20,23, 24,27
A	US 5 318 547 A (ALTSCHULER BRUCE R) 7 June 1994 (1994-06-07) figure 4	5,16,17, 19
A	US 4 897 083 A (MARTELL MICHAEL D) 30 January 1990 (1990-01-30) column 5, line 46 - line 48 figure 5	5,16,17, 19
A	EP 0 394 537 A (MCNAUGHTON ROY D) 31 October 1990 (1990-10-31) -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/24510

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 6093170	A	25-07-2000	AU	758476 B2		20-03-2003
			AU	1364800 A		07-09-2000
GB 2287192	A	13-09-1995	GB	2321409 A , B		29-07-1998
US 6162198	A	19-12-2000	NONE			
US 5318547	A	07-06-1994	NONE			
US 4897083	A	30-01-1990	NONE			
EP 0394537	A	31-10-1990	CA	1285441 C		02-07-1991
			AU	620396 B2		20-02-1992
			AU	3380989 A		01-11-1990
			EP	0394537 A1		31-10-1990
			ES	2049771 T3		01-05-1994
			US	4874383 A		17-10-1989
			US	5024660 A		18-06-1991